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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/845,869
Filing Date: April 30, 2001
Appellant(s): JIA ET AL.

Robert C. Sismilich
For Appellant

EXAMINER'S ANSWER

This is in response to the amended appeal brief filed 8/9/05 appealing from the Office action mailed 11/8/04.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,140,348	JAMZADEH et al.	8-1992
5,889,578	JAMZADEH	3-1999
5,600,412	CONNORS	2-1997

(9) Grounds of Rejection

The following ground(s) of rejection (reprinted from the Final Rejection dated 11/08/04) are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 2, 5-8, 12-17, 19, 20, and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,140,348 by Jamzadeh et al. ("Jamzadeh '348") in view of U.S. Patent 5,889,578 by Jamzadeh ("Jamzadeh '578").

Regarding claim 1, Jamzadeh '348 discloses a method for automatically generating a framed digital image, comprising:

determining at least one frame attribute by applying framing rules to the overall image characteristics (column 5, lines 10-13: the dominant color ("overall image characteristic") is selected for inclusion in the frame); and

generating a second data set representing pixels of the framed digital image, the second data set defining a representation of the unframed digital image surrounded by a frame having the at least one frame attribute (column 4, lines 28-41: framed image is generated, wherein the framed portions include the dominant color).

Jamzadeh '348 is silent to the particular analyses (i.e. the four analyzing steps) for ascertaining the image category and framing the image based on its category.

Jamzadeh '578 discloses a method for determining the category of an image. Specifically, Jamzadeh '578 discloses:

analyzing a portion of a first data set representing pixels of an unframed digital image so as to identify a plurality of image components each corresponding to a spatial region of the pixels (figure 2 – the image is analyzed by at least one template to delineate two image components A and B);

independently analyzing each of the image components to determine a set of component characteristics for the corresponding image component (figure 7: the "peripheral region densities" and the "central region densities" are measured to determine a characteristic of each component – e.g. the average density of each region – see column 5, lines 34-38);

collectively analyzing the plurality of sets of component characteristics to determine overall image characteristics indicative of subject matter of the unframed image (figure 7: the peripheral regions' average densities and the central regions' average densities are compared to determine overall characteristics (e.g. the overall lightness or darkness) of the image that indicate whether the image is an outdoor scene or an indoor scene – see column 6, lines 51-54); and

analyzing the overall image characteristics to determine an image category corresponding to the subject matter (figure 7: the relative lightness or darkness of different colors are analyzed to determine the specific subject matter of the image – portrait, seashore, sky, etc.).

Thus, Jamzadeh '578 analyzes the image to determine the dominant colors of the image, which are indicative the subject matter of the image, such as shown in figure 7. See also column 5, line 66 through column 6, line 8.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Jamzadeh '348 by Jamzadeh '578 to analyze the image to determine the image category and then frame the image based on the image category, since Jamzadeh '348 discloses framing an image based on the dominant color of the image, and Jamzadeh '578 teaches that the dominant color is typically ascertained by the claimed analysis steps and indicates the category of the image.

Claims 19 and 22 claim the corresponding apparatus and program storage medium of claim 1, which are obvious combinations of Jamzadeh '348 and Jamzadeh '578 for substantially the same reasons as recited above for claim 1.

Regarding claim 2, Jamzadeh '578 discloses the analyzing the portion of the first data set includes:

mapping the pixels to a 2-D image space representative of the rows and columns of the unframed image (column 3, lines 51-63: the image is scanned to form a 2-D image of pixels); and

selecting a region of the 2-D image space for each of the components (see figure 2).

Regarding claim 27, Jamzadeh '578 discloses the region is less than the entire 2-D image space (see figure 2).

Regarding claim 5, Jamzadeh '578 discloses the analyzing the portion of the first data set includes:

mapping the pixels to a 3-D color space for analysis and selecting a region of the 3-D color space for each of the image components (i.e. pixels are in 3-D RGB color space and a region of the color space is selected as the dominant color for each region – see also figure 5).

Regarding claim 6, Jamzadeh '578 discloses the selecting is performed in accordance with a principal component analysis technique (i.e. principal color components – R, G, and B – are analyzed).

Regarding claim 7, Jamzadeh '578 discloses identifying a dominant color of the image component (column 6, lines 1-10).

Regarding claim 8, Jamzadeh '578 discloses the image characteristic is colorfulness indicative of the amount of hue exhibited by the image components (column 5, lines 34-38: the average color indicates the average amount of hue).

Regarding claim 12, Jamzadeh '578 discloses the image category is portrait (see figure 7).

Regarding claim 13, Jamzadeh '348 discloses the framing rules specify a color scheme of similar (i.e. dominant color is selected for the frame, so that the frame color is similar to the color scheme of the image).

Regarding claim 14, Jamzadeh '348 discloses modifying the framing rules prior to the determining (column 5, lines 10-13: logic/control unit 30 can be programmed to any of a number of predetermined relationships).

Regarding claim 15, Jamzadeh '348 discloses sending the second data set to an imaging device for producing the framed digital image (figure 1: processed image is sent to printer for printing).

Regarding claim 16, Jamzadeh '348 discloses the representation of the unframed image is scaled in the framed image (column 3, lines 19-30: user selects the size of the outputted (framed) image).

Regarding claim 17, Jamzadeh '348 discloses the frame attribute is border color (column 4, lines 30-41).

Regarding claim 23, Jamzadeh '348 discloses the framing rules specify a strong intensity (i.e. the framing rules specify a dominant color is used).

Regarding claim 24, Jamzadeh '348 discloses the framing rules specify a flat texture in that the border is composed of a uniform color.

Regarding claim 25, Jamzadeh '348 discloses the framing rules specify 2-D – the frame is a two-dimensional arrangement of pixels.

Regarding claim 26, if the image category cannot be determined per Jamzadeh '578, then the dominant color is used, according to Jamzadeh '348.

Regarding claim 28, Jamzadeh '578 discloses the image components have different dimensions (see figure 2).

Regarding claim 29, Jamzadeh '348 discloses specifying a color scheme that is different from the dominant color (i.e. the second, third, or fourth most dominant color is utilized as the frame color – see column 5, lines 10-14).

Regarding claim 20, Jamzadeh '348 discloses

a memory accessible by the image categorizer, the image categorizer automatically defining the at least one frame attribute in accordance with at least one framing scheme parameter stored in the memory (column 5, lines 10-13: the logic/control unit 30 is programmed

to automatically define the frame attribute from a framing scheme parameter, which is simply a designation of the dominant color, which substantially determines the image category; since the logic/control unit is programmed, it inherently comprises memory to store program instructions).

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jamzadeh '348 in view of Jamzadeh '578, and furth in view of U.S. Patent 5,600,412 by Connors.

Regarding claim 21, Jamzadeh '348 discloses the memory is writeable (i.e. a program is written to it), further comprising:

a user interface (45, figure 1) communicatively coupled to the memory for modifying the image size.

Jamzadeh '348 does not disclose the user interface is for modifying the framing scheme parameter (i.e. the choice of frame color).

Connors discloses a similar frame generation system (figure 2). In particular, Connors discloses that a user inputs data on both the size and color preferences (column 6, lines 13-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Jamzadeh '348 by Connors to achieve the claimed invention by allowing the user to select the at least one framing scheme parameter (i.e. frame color selection) via a user interface since Connors shows that such a feature provides the user with direct control over the frame color.

(10) Response to Argument

Appellant's characterization of the prior art relied upon for the rejection of claim 1 is summarized as follows: "the Jamzadeh '348 reference directed to image framing is silent on

image categorization, while the Jamzadeh '578 reference that discloses image categorization is silent as to image framing" (see page 11 of Appellant's Brief). Appellant's arguments contained on pp. 4-12 of the Brief appear to center around this theme that the '348 and '578 patents are disjointed teachings that are combinable to teach all of the limitations of claim 1 only via hindsight reconstruction. That is, "the combined teachings or suggestions simply do not describe how to use image categorization as taught by the Jamzadeh '578 reference to determine frame attributes for the image that are dependent on the image category" (see page 9 of the Brief).

It appears that the Appellant's primary argument pertaining to claim 1 is that the '348 and '578 patents are not properly combinable to achieve the claimed invention. In response, the Examiner maintains the rejection for the following reasons.

As established in the Final Rejection (which is reprinted above), the '348 patent was considered to disclose the "determining" and "generating" steps, except for the "image category" aspect contained in the "determining" step. In other words, the '348 patent taught determining a frame attribute and generating a framed image based on the frame attribute, as claimed. What the '348 patent does not appear to disclose is determining a frame attribute by applying framing rules *for the image category*. Instead, the '348 patent discloses determining which colors in the image are dominant and then generating a picture frame based on the dominant colors. Appellant argues that there is no correspondence between an image's dominant colors and its "category" (see 1st full paragraph, page 11, Brief).

Appellant asserts that, "in light of Appellant's specification, determination of a dominant color cannot be considered as an alternative form of image categorization, but rather it is a totally

separate and different operation from image categorization" (see p. 7 of the Brief). While the present application may not derive the category directly from the dominant color(s), as established below, the prior art of record establishes that it was conventional to equate the dominant color with the category.

Examiner has conceded that the '348 patent does not explicitly disclose determining a frame attribute by applying framing rules for the "image category," which term, as defined by the claim, corresponds to the subject matter of the image.

The '578 patent was relied upon to provide a nexus between the dominant colors of an image and the category of the image. Specifically, the '578 patent teaches that there is a direct relationship between the dominant color of an image and the subject matter of the image. As illustrated in figure 7, different dominant colors are indicative of different subject matter – e.g. light green corresponds to yard/trees; light blue corresponds to sky; white corresponds to cloud/snow; etc. Thus, while the '348 patent may be only concerned with dominant colors and is silent to image categorization, the '578 patent recognizes a direct correspondence between a dominant color in an image and the subject matter of the image. Column 5, line 66+ of the '578 patent states:

> [The] kind of outdoor scene is based on the fact that outdoor scenes that are dominated by a certain feature will show strong color properties once a color histogram is plotted for them. The major (dominant) colors of the frame could be determined by examining these histograms of the three color channels (R,G,B). The outdoor scenes are usually full of certain colors, e.g., green from the trees and grass, blue from the sky and water, white and gray from he snow or clouds, brown from dirt, rocks, and sand.

Thus, the '578 and '348 patents both utilize a color histogram to determine the dominant colors of the image (compare figure 6 of the '348 patent with the above passage). The '578 patent provides the additional teaching that the dominant color indicates the subject matter, or category, of the image. In view of this teaching, one skilled in the art would have recognized that the dominant colors ascertained in the '348 patent necessarily indicate the image category. As shown in figure 7 of the '578 patent, the image "categories" appear to be no more than labels assigned to images on the basis of the dominant colors. Therefore, knowledge of the dominant color directly produces knowledge of the image category, and vice versa.

It is the Examiner's position that the teachings of the '578 patent provide the essential nexus between the dominant color of an image and the category of an image required to render the proposed combination valid. For all intents and purposes, the '578 patent equates the dominant color and the image category. On the basis of this teaching, one skilled in the art would have recognized that determining a frame attribute by applying framing rules for a *dominant color* is equivalent to determining a frame attribute by applying framing rules for an *image category*.

The '578 patent was also relied upon to teach the four claimed analyzing steps for determining the image category. That is, the '578 patent shows that the "analyzing," "independently analyzing," "collectively analyzing," and second "analyzing" steps are conventional processes for determining the image category that corresponds to the subject matter. These analyzing steps are written in seemingly generic terms – e.g. "image components," "component characteristics," and "overall image characteristics" – which substantially read on the '578 patent's process for determining the image category.

With such analysis steps being disclosed as conventionally utilized for the purpose of determining the dominant color/image category, one skilled in the art would have been motivated to employ them in combination with the teachings of the '348 patent as pre-processes to the "determining" and "generating" steps.

On p. 12 of the Brief, Appellants also argue, "if it had been obvious to inventor Jamzadeh to combine the image categorization of he Jamzadeh '578 patent application with the image framing of the Jamzadeh '348 reference, the Jamzadeh '348 reference would have also been cited in the Jamzadeh '578 patent application and such a beneficial feature noted."

Examiner is unaware of, and Appellant fails to cite, any statutory authority, common law principles, administrative rules, or the like, which favor such a proposition. It is the Examiner's understanding that the doctrine of obviousness hinges on what the prior art as a whole teaches at the time of the making of the invention, rather than whether a relied-upon reference cites another relied-upon reference. In the Examiner's opinion, an otherwise valid combination of two references for rejection of a claim under 35 USC § 103 is not negatived when the two applied patent references having a common inventor omit "any mention" of each other.

In summary, the Examiner believes that the teachings of the '578 are sufficient to both overcome the deficiencies of the '348 patent and provide the requisite motivation to one skilled in the art to modify the '348 patent to achieve the claimed invention. The '578 patent fairly teaches the essential nexus between the dominant color of an image and the category of the image, whereby one skilled in the art would have known that the dominant colors of the '348

patent denote the image category, and therefore, the '348 patent's framing of the image on the based of the dominant color is essentially equivalent to framing the image on the basis of the image category.

The above comments are also applicable to independent claims 19 and 22, which claim an apparatus and program storage medium, respectively, and whose limitations directly correspond to those of claim 1.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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10 October 2005

Conferees:

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